Claims

1. A method for the diagnosis of a polymorphism in PDH E2 in a human, which method comprises determining the sequence of the human at one or more of positions 857 and 1255 in the PDH E2 gene as defined by the positions in SEQ ID NO: 1 or positions 216 or 349 of PDH E2 protein as defined by the position in SEQ ID NO: 2; and determining the status of the human by reference to polymorphism in PDH E2.

2. A method according to claim 1 in which the polymorphisms are further defined as:

Position	Polymorphism	Reference
857	T/C	SEQ ID NO: 1
1255	G/A	SEQ ID NO: 1
216	Val-Ala	SEQ ID NO: 2
349	Asp-Asn	SEQ ID NO: 2

3 An isolated nucleic acid comprising any one of the following polymorphisms:
the nucleic acid of SEQ ID NO: 1 with C at position 857 as defined by the positions in SEQ ID NO: 1;
the nucleic acid of SEQ ID NO: 1 with A at position 1255 as defined by the position in SEQ ID NO: 1;
or a complementary strand thereof or an antisense sequence thereto or a fragment thereof of at least 20 bases comprising at least one polymorphism.

4 An allele specific primer capable of detecting a PDH E2 gene polymorphism at one or more of positions 857 and 1255 in the PDH E2 gene as defined by the positions in SEQ ID NO: 1.

5 An allele-specific oligonucleotide probe capable of detecting a PDH E2 gene polymorphism at one or more of positions 857 and 1255 in the PDH E2 gene as defined by the positions in SEQ ID NO: 1.

6 A diagnostic kit comprising an allele specific oligonucleotide probe as claimed in claim 5 and/or an allele-specific primer as claimed in claim 4.

7 Use of any polymorphism defined in claim 2 as a genetic marker in a linkage study.

8 A method of treating a human in need of treatment with a PDH drug in which the method comprises:

i) diagnosis of a polymorphism in PDH E2 in a human, which method comprises determining the sequence of the human at one or more of positions 857 and 1255 in the PDH E2 gene as defined by the positions in SEQ ID NO: 1 or positions 216 or 349 of PDH E2 protein as defined by the position in SEQ ID NO: 2; and determining the status of the human by reference to polymorphism in the PDH E2; and

ii) administering an effective amount of a PDH drug.

9 An allelic variant of the human PDH E2 polypeptide in isolated form having a alanine at position 216 and/or an asparagine at position 349 or a fragment thereof comprising at least 10 amino acids provided that the fragment comprises the allelic variant at position 216 and/or position 349.

10 An antibody specific for an allelic variant of human PDH E2 polypeptide having a alanine at position 216 and/or an asparagine at position 349 or a fragment thereof comprising at least 10 amino acids provided that the fragment comprises the allelic variants at position 216 and /or position 349.

11 Use of any polymorphism as defined in claim 1 or 2 in bioinformatic analysis.

12 A use according to claim 11 comprising a bioinformatic analysis selected from homology searching, mapping, haplotyping, genotyping or pharmacogenetic analysis.